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ABSTRACT

A government study investigated the federal requirements and existing information governing pesticide use in schools, what data exists on health problems associated with short- and long-term use, and the Environmental Protection Agency (EPA) and state responses to reduce pesticide usage around schools. Findings reveal no federal regulations exist regarding pesticide use involving schools, and while schools are required to use pesticides according to provisions on the labels, the instructions do not protect children differently than anyone else. No comprehensive information exists on the amount of pesticides used in the nation's public schools, and data on pesticide linkage to illnesses is also limited. The EPA and states have taken initiatives over the last decade to reduce pesticide use in schools by employing alternative pest management strategies, commonly referred to as integrated pest management (IPM). The EPA has encouraged schools to adopt IPMs since the early 1990s, including providing financial support to some state and school districts and developing manuals and education kits. Six states have mandated IPM use in their schools. Appendices provide a list of states' legislation and requirements on the use of pesticides in schools as of September 1999, comments from the EPA, and information on the study's scope and methodology. (GR)

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ED 437 824

United States General Accounting Office

GAO

Report to the Ranking Minority Member, Committee on Governmental Affairs, U.S. Senate

November 1999

# PESTICIDES

# Use, Effects, and Alternatives to Pesticides in Schools

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**United States**
**General Accounting Office**
**Washington, D.C. 20548**

**Resources, Community, and**
**Economic Development Division**

B-283799

November 29, 1999

The Honorable Joseph I. Lieberman
Ranking Minority Member
Committee on Governmental Affairs
United States Senate

Dear Senator Lieberman:

Pesticides destroy, prevent, or repel pests, such as insects, weeds, and rodents, but may cause a range of harmful health effects in humans, including cancer, short- and long-term injury to the nervous system, lung damage, reproductive dysfunction, and possible dysfunction of the endocrine (hormone) and immune systems. Children are at greater risk from pesticide exposure than most adults because, pound for pound of body weight, children breathe more, eat more, and have more rapid metabolisms than adults, and they also play on the floor and lawn where pesticides are commonly applied. Children have more frequent hand-to-mouth contact as well.

Concerned about the potential exposure of children to pesticides, you asked us to review a number of issues concerning the use of pesticides in schools. Specifically, this report addresses the following questions: (1) What federal requirements govern the use of pesticides in schools? (2) What information exists on the use of pesticides in schools? (3) What data exist on the incidences of short- and long-term illnesses linked to exposure to pesticides in schools, and to the extent data are available, what do these data show? (4) Are the Environmental Protection Agency (EPA) and the states taking actions, where appropriate, to reduce the use of pesticides in schools, and if so, what are the results of these efforts?

## Results in Brief

The Federal Insecticide, Fungicide, and Rodenticide Act regulates the use of pesticides in the United States, but there are no specific provisions in the law about the use of pesticides in schools. EPA will register a pesticide, thereby permitting its sale and distribution, if the agency determines, among other things, that the pesticide will not generally cause unreasonable adverse effects on human health or the environment. Registration decisions are based in part on studies of the pesticides' effects and toxicity, some of which are designed to assess the risks to infants and children. The law requires that regardless of where they are used, pesticides be used only as directed by their labels. Over 3,000

pesticide labels include provisions applicable to how, when, and where the pesticides can be used in schools, but these provisions do not generally afford any greater or lesser protection for school children than other groups, such as hospital and nursing home patients.

Comprehensive nationwide information on the amount of pesticides used in the nation's 110,000 public schools is not available. The federal government has not collected such data, and according to EPA's 10 regional offices and the state officials we spoke with, only one state, Louisiana, requires its school districts to specifically report the amount of pesticides used. In addition, one other state, New York, requires commercial applicators to report information on the amount of pesticides they used and the locations where they used it. While this information could be used to help analyze pesticide exposure incidents, neither of these states has yet to analyze the data collected. Six other states require commercial applicators to report the amounts of pesticides they use, but the reported information does not identify where the pesticides were used. Because EPA believes this information would be useful to help determine the risks posed by pesticides, the agency is considering conducting a survey (pending adequate funding) on the use of pesticides in schools and other public settings in the near future.

Data on short- and long-term illnesses linked to pesticide exposure, whether in schools or other settings, are limited. Information on incidents of short-term pesticide exposure that EPA obtained from the American Association of Poison Control Centers shows that from 1993 through 1996, about 2,300 pesticide-related exposures involving individuals at schools were reported. However, there are questions about the completeness and reliability of these data because some cases of pesticide exposure are not reported and outcomes are not known for over 40 percent of the reported cases. Information on the long-term illnesses linked to pesticide exposure, not only for school children but also for the public in general, is even more limited. While the federal government has recently initiated several studies to identify what long-term illnesses are linked to pesticide exposure, many will not be completed for several years.

EPA and a number of states have taken initiatives and actions over the last decade to reduce the use of pesticides in schools by employing alternative pest management strategies. Taken together, these alternatives are commonly referred to as integrated pest management and may include making structural repairs to prevent pests from getting into a building, improving sanitation, and using baits and traps as needed. If pesticides are

needed, integrated pest management suggests that the least-toxic chemical controls be used. EPA has been active in encouraging schools to adopt integrated pest management since the early 1990s, including providing financial support to some states and school districts and developing manuals and education kits. A number of states are also taking actions to implement or encourage integrated pest management in schools. Specifically, six states have enacted laws mandating the use of integrated pest management in their schools, while another has provided for voluntary participation.

## Background

Pesticides are designed to control or eliminate pests such as insects, rodents, weeds, bacteria, and fungus. Although pesticides play a significant role in increasing food production and eliminating diseases, exposure to pesticides can be harmful to humans. The ill-effects may follow from short- or long-term exposure and from low- or high-level exposure through skin contact, inhalation, or ingestion. Some pesticides are highly toxic, with a few drops causing extremely harmful effects; although other pesticides are less toxic, too much exposure to them can also cause harmful effects. Symptoms may appear within minutes or hours after an exposure to a pesticide and range from relatively mild headaches to fatigue, skin rashes, eye irritation, burns, paralysis, and even death. Because some of these symptoms are similar to those of other illnesses (such as the flu), the effects of pesticides can be misdiagnosed, which may mask the true extent of the illnesses caused by pesticides. Long-term illnesses and those with delayed onsets, such as cancer, which may only appear years after exposure to pesticides, can also occur. Some long-term illnesses linked to pesticide exposure may be subtle–such as neurological disorders or reduced cognitive skills.

Because of the potentially harmful effects of pesticides on human health and the environment, a number of governmental agencies, such as EPA, and interest groups, such as the National Coalition Against the Misuse of Pesticides, have advocated the use of alternative pest management strategies. Integrated pest management is not a new concept. It has been used in agriculture for several decades, and its use in schools has been emphasized by EPA and some states since the early 1990s.

## Federal Requirements Governing Pesticides Do Not Specifically Refer to Their Use in Schools

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) regulates the use of pesticides in the United States. Under FIFRA, pesticides must generally be registered with EPA to be sold or distributed. EPA will register a pesticide if it determines, among other things, that the pesticide will not generally cause unreasonable adverse effects on human health or the environment when used in accordance with commonly recognized practices. EPA makes this determination based on studies of a pesticide's effects. Some of the studies are designed to assess the risks to infants and children. EPA may cancel a registration if it later determines that a pesticide poses an unreasonable risk to health or the environment. EPA's principal means of ensuring proper use of pesticides is enforcement of the agency-approved label directions, restrictions, and precautions. Failure to use a pesticide in accordance with the label may result in civil or criminal penalties. While FIFRA itself does not contain any provisions specifically about the use of pesticides in schools, some pesticide labels do specify how, when, and where the pesticides can be used in schools.

According to an official of EPA's pesticide program, more than 3,000 pesticide labels (out of over 17,000) include provisions applicable to how, when, and where the pesticides can be used in schools. For example, one insecticide label we reviewed stated that school classrooms should only be treated when students are not present and that all treated surfaces should be dry before the students are allowed to return. It further stated that hospital and nursing home patients should be removed from their rooms while the pesticide is being applied and not allowed to return until all treated surfaces are dry. An EPA pesticide program official said that the labels that mention use in schools do not generally afford any greater or lesser protection for school children than for other groups, such as hospital and nursing home patients.

## Nationwide Information on the Use of Pesticides in Schools Is Not Readily Available

Comprehensive nationwide information on the amount of pesticides used in the 110,000 public schools of the nation's 12,000 school districts is not available. According to EPA, there is no federal requirement that such data be collected. We identified only one state that requires its school districts to specifically report the amount of pesticides used and one other state that requires commercial applicators to report information on the amounts of pesticides they used and where they used them. Consequently, little information exists nationwide on the extent to which children are exposed to pesticides while at school. EPA headquarters officials said that having information on the use of pesticides would be useful and, pending

adequate funding, is considering conducting a survey on the use of pesticides in schools and other public settings in the near future.

While many of the EPA regional and state officials said that obtaining, sorting, organizing, and analyzing data on the overall use of pesticides in schools would be costly, a current requirement in FIFRA could be used to document the use of some pesticides in schools. FIFRA requires that in the absence of state reporting requirements, certified applicators of restricted-use pesticides (ones that are particularly toxic that can only be applied by certified pesticide applicators) must maintain records that contain the product names, amounts, approximate dates of application, and locations where any restricted-use pesticides were applied and to retain the records for 2 years after the pesticides' use. While the records must be made available to any federal or state agency that deals with pesticide use or with any health or environmental issue connected with the use of these pesticides, FIFRA does not currently require this information to be reported to EPA.

The EPA regional and state officials identified eight states that collect information on the use of pesticides in their states, but only two collect information on pesticides used in schools. In 1995, Louisiana passed a law requiring school districts to reduce their use of pesticides, as well as to annually report the amounts of pesticides used. New York passed a law in 1996 requiring commercial applicators to report the amounts of pesticides they used, including where they used them. While this information could be used to help analyze incidents of pesticide exposure, neither state has yet analyzed the information reported. Six other states–Arizona, California, Connecticut, Massachusetts, New Hampshire, and New Mexico–require commercial applicators to submit information on the total amounts of specific pesticides used. However, these states do not require the applicators to identify where the pesticides were applied.

EPA headquarters officials said that information on the use of pesticides in schools would be useful. In fact, EPA is considering conducting a feasibility study in fiscal year 2000 and a full-scale statistical survey in fiscal years 2001 and 2002 (pending adequate funding) on the use of pesticides in schools and other public settings to gather the data needed to determine the risks posed by pesticides.

## Data on Short- and Long-Term Illnesses Linked to Pesticide Exposure in Schools Are Limited

Data on the extent to which school children, and people in general, are experiencing short- or long-term illnesses and injuries due to pesticides are limited. The data sources that are available to track pesticide exposures in schools have limitations that could result in significant underestimation of both the frequency and the severity of pesticide exposures–not only the exposures occurring in schools, but those occurring in all settings. Recognizing the limitations of these data sources, EPA and others have recently undertaken a number of initiatives to improve the quality of the data on the short-term illnesses linked to pesticide exposures in schools and elsewhere, but it is too early to assess the results of these initiatives. Information on the long-term illnesses linked to pesticide exposure, not only for school children, but generally, is even more limited. While the federal government has recently initiated several studies to identify what long-term illnesses are linked to pesticide exposure, most will not be completed for several years.

### Information on the Extent of Short-Term Pesticide Exposure in Schools Is Limited

EPA provided us with information from two data sources that contain information on the extent of pesticide exposures at school sites: the American Association of Poison Control Centers' Toxic Exposure Surveillance System and the so-called FIFRA section 6(a)(2) reporting system. While these two data sources can isolate pesticide exposures that occurred at schools and other locations, both have limitations that affect the reliability and completeness of their information.

Specifically, EPA's analysis of the Poison Control Centers' data showed that from 1993 through 1996, about 2,300 pesticide exposures involving individuals at schools were reported. Of these, 329 individuals were seen in health care facilities, 15 were hospitalized, and 4 were treated in intensive care units. However, EPA officials expressed a number of concerns about the reliability and completeness of these numbers:

- Some cases of known or suspected pesticide exposure are simply not reported.
- Some Poison Control Centers do not report to the national database. Poison Control Centers represented in the national database covered only 81 percent of the nation's population during the period from 1993 through 1996.
- Outcomes are not known for over 1,000 of the 2,300 reported exposure cases.
- Standardized criteria do not exist to clearly identify illnesses linked to pesticide exposure, and thus misclassification of pesticide illnesses may

have occurred when symptoms were reported over the phone and were not confirmed by a physician or laboratory test.

The second data source, required by section 6(a)(2) of FIFRA, requires those responsible for registering a pesticide with EPA to report adverse effects to EPA if they become aware of such effects through studies or incidents. EPA's analysis of these data showed that from 1992 through 1997, 80 incidents (each of which may have involved one or more individuals) occurred involving pesticides at schools. An EPA pesticide program official told us that these data may not be complete because (1) those responsible for registering the pesticides may not be aware of all incidents, (2) not all incidents occurring in schools are clearly identified as such, and (3) EPA relies heavily on voluntary reporting by those responsible for registering the pesticides.

An August 1999 internal memorandum concerning pesticides in schools, prepared by EPA pesticide program officials, stated that no one data source has complete national and age-group coverage and that the definition of a pesticide poisoning incident varies across data sets. The memorandum also stated that underreporting is a known problem for pesticide poisoning surveillance systems in general and thus for incidents at schools as well. Recognizing these data limitations and concerns, EPA has taken or is considering a number of actions to address them. For example, EPA, in conjunction with the National Institute for Occupational Safety and Health, collaborated with other federal agencies, state health departments, and others to develop a standardized list of information states should collect to improve data consistency. The collection of this standardized information is now being undertaken in eight states.

## Virtually No Information Exists on the Long-Term Illnesses Linked to Pesticide Exposures

Information on long-term illnesses from the use of pesticides in schools, and in general, is even more limited than the information on short-term illnesses. EPA and the National Institutes of Health have recently sponsored a number of studies on children's environmental health to fill this information void, but it will be several years before these studies are completed. Among the studies being conducted, we identified one that will measure the exposure of school children in kindergarten through the fifth grade to pesticides and other chemicals. The sample group comprises children from two low-income, racially diverse neighborhoods in Minneapolis, Minnesota. The results of this study are intended to provide information about how children are exposed to pesticides.

## Efforts Are Under Way to Reduce the Use of Pesticides in Schools

Because of the potential harm pesticides can do to human health and the environment, EPA and a number of states have taken steps over the last decade to reduce the use of pesticides in schools by employing alternative pest management strategies. Generally, these strategies include actions such as monitoring for pests, making structural repairs to prevent pests from getting into buildings, improving sanitation, using baits and traps as needed as opposed to routinely spraying for pests, and if pesticides are needed, using the least-toxic chemical controls.

### EPA Has Encouraged the Use of Integrated Pest Management in Schools

Over the last decade, EPA has undertaken numerous initiatives to encourage the implementation of integrated pest management in schools. For example, EPA has provided financial support to some states and school districts to help them implement integrated pest management programs. EPA provided a grant to Louisiana to measure the effect of integrated pest management techniques in controlling pests in school facilities and another grant to Florida's Department of Health to develop a national integrated pest management Web site.[1] EPA has created a national directory with specific information about each state program and the appropriate state contacts.[2] EPA has also developed several different integrated pest management manuals and brochures, education kits, and videos.[3] In addition, EPA has hosted conferences and workshops on the use of pesticides in schools.

### Some States Have Taken Initiatives to Reduce the Use of Pesticides in Schools

Seven states have enacted laws on the implementation of integrated pest management programs, according to EPA officials. Six of these states mandate the use of integrated pest management in schools, currently or in the near future: Illinois, Louisiana, Maryland, Michigan, Texas, and West Virginia. The seventh state, Montana, has enacted a law that encourages school districts to voluntarily implement integrated pest management. Of the six states with mandatory programs, Texas enacted the first law (1991), but it did not become effective until 1995. Texas officials said that 74 percent of the state's school districts responded to a recent survey and all indicated that they were complying with the state's requirement to adopt an integrated pest management program. The officials said that because the remaining 26 percent did not respond, they were concerned

[1]www.ifas.ufl.edu/~schoolipm/index.html

[2]www.epa.gov/reg5foia/pest/matilla/imp.html

[3]For instance, EPA developed Pest Control in the School Environment: Adopting Integrated Pest Management (EPA 735-F-93-012, Aug. 1993) and IPM for Schools: A How-to-Manual (EPA 909-B-97-001, Mar. 1997).

that these school districts were not complying with the requirements and planned to follow up with these school districts to ascertain the status of their integrated pest management programs. Rather than adopting a mandatory integrated pest management program, Illinois enacted a voluntary program in 1992. At that time, 91 percent of the state's schools reported that they routinely sprayed pesticides. A survey conducted in 1998 showed that 82 percent of the state's schools were still routinely spraying pesticides. Concerned about the lack of progress in reducing the use of pesticides, state officials told us that the state's integrated pest management law had been amended to change the program from voluntary to mandatory, effective in August 2000.

In addition to states' enacting legislation on the implementation of integrated pest management programs, EPA officials also noted that some states have passed laws requiring advance notification and the posting of signs whenever pesticides are used in schools. Nine states require some type of notification before applying pesticides. Specifically, two of these states require that all parents or guardians be notified, while the other seven states require that school districts develop a registry of those who want or need to be notified. In addition, 18 states require schools to post signs whenever pesticides are applied. Appendix I provides a table showing which states have integrated pest management laws and the notification or posting requirements.

In the absence of laws discouraging the use of pesticides in schools, some other states are pursuing integrated pest management efforts in schools. For example, officials from Minnesota's Department of Agriculture said that their agency is developing a voluntary integrated pest management program for schools. The state also plans to survey schools on their current pest management practices to help determine what information the schools need about integrated pest management. In Florida, the Department of Agriculture's Cooperative Extension Service has conducted several workshops on integrated pest management for representatives from every school district in the state. A state official said that as a result of these workshops, 70 to 75 percent of the 67 school districts in the state are implementing integrated pest management activities. Some school districts are also trying to implement integrated pest management activities on their own. For example, the Monroe County, Indiana, school district, comprising 18 schools, has implemented its own initiative over the last several years and has reduced its use of pesticides by 92 percent.

## EPA, State, and School District Officials Generally Support Integrated Pest Management but Identified Issues Concerning Its Implementation

There was general consensus among the officials of EPA's regional offices, states, and school districts we contacted that using integrated pest management in schools is beneficial. Some of the primary benefits cited were reducing the risk of pesticide accidents and the related liability issues and generally reducing the potential harm to children. They cautioned, however, that implementing an integrated pest management program often involves increased costs in the beginning. Additionally, integrated pest management entails more knowledge of the pests and greater labor to control or eliminate them. The EPA regional and state officials told us that start-up costs include training the school staff and obtaining professional expertise. Several officials told us that after the first year or two of the integrated pest management program, the costs drop to a level that is equal to or below those of traditional pest control programs. However, these officials generally did not have detailed information on the costs prior to or after integrated pest management was implemented.

Adopting integrated pest management may not eliminate the use of pesticides in schools. EPA regional, state, and school district officials frequently said that if the stakeholders (including school administrators, teachers, custodial staff, parents, and students) do not all support integrated pest management, it may not be effectively implemented. For instance, if an administrator wants to adopt integrated pest management, but other school staff do not support the program, they might continue using pesticides rather than trying integrated pest management methods. For example, several of the officials we spoke with told us that some teachers apply pesticides in their classrooms rather than waiting to see whether the integrated pest management activities prove to be effective. Similarly, if custodial staff implement integrated pest management without the other stakeholders' support, others in the school may not understand that some pests might be present while the source of the problem is being identified and eliminated.

While generally supportive of the benefits of integrated pest management, most of the EPA regional and state officials expressed some reservations about a national requirement for integrated pest management for schools. They said that (1) because pest problems differ across the nation, a national requirement could be too prescriptive; (2) adequate resources would have to be devoted to assisting school districts in implementing integrated pest management; and (3) adequate resources would have to be devoted to monitoring the implementation of the law and enforcing it.

## Agency Comments

We provided EPA with a draft of this report for its review and comment. EPA supported our inquiry into this matter, stating that one of its highest priorities is the protection of children's health, including any risk from their exposure to pesticides in schools. EPA also provided additional information on the process it uses to register pesticides, as well as on additional ongoing or planned efforts it has to encourage the use of integrated pest management in schools. The full text of EPA's comments is included as appendix II.

We conducted our review from May through November 1999 in accordance with generally accepted government auditing standards. See appendix III for the details of our scope and methodology.

As arranged with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days after the date of this letter. At that time, we will send copies to other appropriate congressional committees and to Carol M. Browner, Administrator of EPA. We will also make copies available to others upon request.

Should you need further information, please call me at (202) 512-6111. Key contributors to this report are Charles Barchok, Harriet Drummings, Richard Johnson, Stephanie Luehr, Mary Nugent, and David A. Rogers.

Sincerely yours,

David D. Wood

David G. Wood
Associate Director, Environmental
Protection Issues

Appendix I

# States' Legislation and Requirements on the Use of Pesticides in Schools as of September 1999

| State | Enacted integrated pest management law[a] | Requires notification that pesticides will be used[b] | Requires signs be posted in areas where pesticides will be or have been used[c] |
|---|---|---|---|
| Alabama | | | |
| Alaska | | | |
| Arizona | | | |
| Arkansas | | | |
| California | | | |
| Colorado | | | X |
| Connecticut | | Registry | |
| Delaware | | | |
| District of Columbia | | | |
| Florida | | | |
| Georgia | | | X |
| Hawaii | | | |
| Idaho | | | |
| Illinois | X | Registry | X |
| Indiana | | | X |
| Iowa | | | X |
| Kansas | | | |
| Kentucky | | | |
| Louisiana | X | Registry | |
| Maine | | | X |
| Maryland | X | All parents | X |
| Massachusetts | | Registry | X |
| Michigan | X | Registry | X |
| Minnesota | | | |
| Mississippi | | | |
| Missouri | | | |
| Montana | X | | X |
| Nebraska | | | |
| New Hampshire | | | X |
| New Jersey | | | X |
| New Mexico | | | |
| New York | | | |
| Nevada | | | |
| North Carolina | | | |
| North Dakota | | | |

(continued)

| State | Enacted integrated pest management law[a] | Requires notification that pesticides will be used[b] | Requires signs be posted in areas where pesticides will be or have been used[c] |
|---|---|---|---|
| Ohio | | | X |
| Oklahoma | | | |
| Oregon | | | |
| Pennsylvania | | Registry | |
| Rhode Island | | | X |
| South Carolina | | | |
| South Dakota | | | |
| Tennessee | | | |
| Texas | X | All parents | X |
| Utah | | | |
| Vermont | | | X |
| Virginia | | | |
| Washington | | | X |
| West Virginia | X | Registry | |
| Wisconsin | | | X |
| Wyoming | | | |

[a]Six states—Illinois, Louisiana, Maryland, Michigan, Texas, and West Virginia—mandate the use of integrated pest management in schools currently or in the near future. A seventh state, Montana, has a law that encourages school districts to voluntarily implement integrated pest management in schools.

[b]Some states require that all parents or guardians be notified when pesticides are being applied. Other states require school districts to develop a registry of those who want or need to be notified.

[c]The posting requirements vary by state. The requirements can apply to indoor or outdoor settings as well as to the periods prior to or after pesticides have been used.

Source: EPA regional officials.

# Comments From the Environmental Protection Agency

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

NOV 3 1999

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

David G. Wood
Associated Director, Environmental Protection Issues
Resources, Community, and Economic Development Division
United States General Accounting Office
441 G St. NW
Washington, D.C. 20548

Dear Mr. Wood:

Thank you for the opportunity to comment on the draft report describing the results of the General Accounting Office's (GAO) review of pesticides in schools. GAO's report entitled "Pesticides: Use, Effects, and Alternatives to Pesticides in Schools" examines the existing data on pesticide use and exposures in schools, and efforts by the U.S. Environmental Protection Agency (EPA) and states to assure protection for children from pesticide risks in schools. EPA appreciates the efforts of GAO in preparing this document to understand national, regional, and state perspectives on this issue, as well as the views of stakeholders from different interest groups.

EPA applauds GAO's inquiry into this matter, since one of the Agency's highest priorities is the protection of children's health, including any risk from their exposure to pesticides in their schools and homes. EPA takes a multi-faceted approach towards protecting children from pesticide exposure. Before EPA will register a pesticide for any use, including use in schools, EPA evaluates the pesticide using the best science currently available, to ensure that the pesticide will generally not pose unreasonable risks to human health or the environment. In evaluating a pesticide registration application, EPA assesses a wide variety of potential health effects associated with the proposed use of the product. These include acute toxic reactions, such as poisoning and skin and eye irritation, as well as long term effects like cancer, birth defects and reproductive system disorders. Several of the types of studies that can be required are designed specifically to assess risks to infants and children.

In addition, the Agency examines data on the physical and chemical properties of the pesticide and information on how the pesticide will be applied to determine the possible routes of

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exposure. Then the Agency identifies all the possible exposure scenarios that are likely to occur through the proposed use. The Agency then estimates possible exposures that could occur in each scenario, using procedures that are documented in "Framework for Assessing Non-occupational/Non-dietary (Residential) Exposure to Pesticides," and "Standard Operating Procedures (SOPs) for Residential Exposure Assessment." EPA recently revised these documents to incorporate new scientific findings. If the Agency determines that it is not possible to assess exposures accurately with available data, the Agency will require the registrant to develop additional data.

In assessing risks posed by a residential use, including risks to school-age children, the Agency identifies toxicity studies in which the route of exposure and duration of exposure correspond to the route and duration of exposure in the residential use. The Agency determines the dose at which adverse effects are observed and applies appropriate factors to account for uncertainties in the data. At this stage, the Agency decides on the appropriate additional safety factor mandated by the Food Quality Protection Act of 1996 (FQPA) to take into account the pesticide's toxicity and completeness of the data with respect to exposure and toxicity to infants and children. Finally, the Agency determines the degree of hazard posed by the potential exposure and decides whether the use meets the statutory standard for registration.

Prior to enactment of the FQPA, EPA's databases and exposure assessment methodologies in this area were less robust than for dietary exposures. However, in order to meet the FQPA requirements to begin routinely addressing non-dietary exposures for the general population, EPA is working through a variety of means, including sponsoring additional research, to strengthen our understanding of children's risks from all sources of pesticide exposure, including that associated with schools.

As evidenced by the GAO report, EPA strongly supports the use of Integrated Pest Management (IPM) in schools. I am pleased to see that the report highlighted some of EPA's IPM guidance and outreach programs. EPA has sponsored many activities, both regionally and nationally, to assess the status of IPM in schools and to assist with IPM implementation. I would like to expand upon some recent efforts in this area.

EPA has created a National Directory of IPM in Schools, intended to assist individuals with finding specific information about each state program, as well as appropriate state contacts. By sharing resources and information, states can develop IPM approaches for their schools in a more efficient, coordinated approach. The National Directory is available on EPA's website at www.epa.gov/reg5foia/pest/matilla/ipm.html.

We are also working with the American Lung Association (ALA) on a video and brochure concerning the control of roaches, rats and mice in the school setting. EPA has sponsored a seven-part video series on IPM in schools developed by the State of Texas. The videos will be made a part of "Tools for Schools," a joint EPA/ALA project to assist schools with improving indoor air quality, including information on pesticides.

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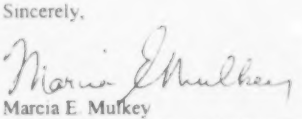
Another project which I would like to highlight is the Agency's work on IPM issues through the Pesticide Environmental Stewardship Program (PESP). PESP is designed to assist organizations and industries to put in place stewardship programs related to pesticides. PESP uses staff throughout the Office of Pesticide Programs to act as liaisons to a specific interested organization or industry. EPA's Region 4, working with PESP, has developed an IPM website. Among others, the Agency is partnering with the New York City Board of Education, the cities of Davis and San Francisco, California, and Chevy Chase Village in Maryland. A grant to the Monroe County, Indiana, school system helped bring them the governor's award for pollution prevention.

Through PESP, the National Pest Control Association has begun work on "certificate" course work for their members (pest control operators/companies). The instruction is directed towards structural IPM. Specifically, it will include training in IPM in schools. Development of the program is expected to be completed within the next two years.

Finally, the Agency has recently decided to establish an internal workgroup to inventory and assess our current array of activities relating to pesticides in schools. The workgroup will make recommendations to the Pesticide Program's senior management on the adequacy and direction of current efforts and any key new work that should be considered.

Again, thank you for the opportunity to comment on this report. Please feel free to contact me if you would like additional information.

Sincerely,



Marcia E. Mulkey
Director, Office of Pesticide Programs

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Appendix III

# Scope and Methodology

To determine what federal requirements govern the use of pesticides in schools, we reviewed applicable federal statutes and regulations. We then corroborated this information with the Environmental Protection Agency's (EPA) Office of Pesticide Programs, EPA's Office of General Counsel, and the U.S. Department of Education's Office of Elementary and Secondary Education. We also worked with officials of EPA's Office of Pesticide Program to determine the number of pesticide labels that were listed in its label database that refer to school use.

To determine what information exists on the use of pesticides in schools, we conducted interviews with pesticide program officials in EPA's headquarters and its 10 regional offices. We asked these officials about, among other things, which states have reporting requirements. If states were collecting information, we asked what the data showed. We also conducted interviews with officials from 10 states—California, Connecticut, Florida, Illinois, Indiana, Louisiana, Maryland, Minnesota, New York, and Texas—to discuss similar points. In selecting the states to contact, we considered geographic distribution and which states had legislative mandates to reduce the use of pesticides or had reporting requirements on the use of pesticides. Finally, we discussed the usefulness of the reporting requirements with interest groups that included the National Pest Control Association and the National Coalition Against the Misuse of Pesticides.

To determine what data exist on the incidences of short- and long-term illnesses linked to exposure to pesticides in schools, and to the extent data were available, what these data show, we conducted interviews with EPA pesticide program officials to determine what and how information on illnesses is collected at a national level. We reviewed several EPA documents that described and critiqued the databases used to collect information on short-term illnesses. We also conducted interviews with pesticide program officials in EPA's 10 regional offices. We asked the officials about which states in their respective regions track incidences of short-term illnesses and what the data show. In addition we conducted interviews with officials from the 10 states listed above to discuss similar points. We also interviewed health officials from two states—Florida and Texas—that are actively involved with tracking pesticide-related illnesses to determine how information is collected. Finally, we discussed the usefulness of tracking pesticide-related illnesses with interest groups that included the National Pest Control Association and the National Coalition Against the Misuse of Pesticides. We interviewed EPA pesticide program officials about long-term illnesses linked to pesticide exposure. They

provided us with information on several ongoing EPA-funded studies on children's environmental health.

To determine whether EPA and the states are taking actions to reduce the use of pesticides in schools and what the results of these efforts are, we conducted interviews with EPA pesticide program officials. We obtained some manuals and education kits that EPA has prepared and distributed to states and school districts to encourage less use of pesticides in schools. We also conducted interviews with pesticide program officials in EPA's 10 regional offices. We asked these officials about which states in their regions have undertaken actions to reduce the use of pesticides in schools and discussed the benefits, costs, and start-up issues involving integrated pest management, as well as EPA's efforts to assist the states and school districts. In addition, we conducted interviews with officials from the 10 states listed above to discuss the status of their efforts, including the benefits, costs, and start-up issues of implementing an integrated pest management program. We reviewed manuals, Web sites, and videos the states have prepared to assist school districts in reducing the use of pesticides. We also interviewed officials of several school districts that have reduced their use of pesticides about the associated benefits, costs, and start-up issues. Finally, we discussed the benefits, costs, and start-up issues of implementing an integrated pest management program with interest groups that included the National Pest Control Association and the National Coalition Against the Misuse of Pesticides.

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